**Equipment:**

1. Lard or some sort of fat.
2. 6N Sodium Hydrozide (NaOH)
3. NaCl / table salt
4. Ethanol - alcohol
5. Glass beaker and stirring rod.
6. Bunsen burner or other means of heating solution.
7. Mold for making soap bars.

**Safety:**  
Gloves, labcoat and appropriate eyeware should be worn when handling the 6N NaOH. It should be used in a well-ventilated area, preferably in a fume hood. DO NOT BREATHE THE FUMES. Wash with vinegar should you get some on your skin (have some vinegar handy before starting the experiment) - DO NOT wash with water! (Thank you, Erick)

**How to do the experiment:**  
1.Place 10 grams of lard (or any other fat, such as oil or butter) in a beaker

2.SLOWLY AND CAREFULLY (have an adult do this...this stuff is dangerous) add 15mL of 6N sodium hydroxide

3.Add 50mL of ethyl alcohol

4. Gently heat this mixture under low heat, stirring with a glass stirring rod until the base has completely reacted with the lard (about 20 to 30 minutes)

5.After all of the base has reacted, add 20mL of water and stir

6.Cool the mixture. Add 12g of sodium chloride (table salt) to 50mL of water. Pour the cooled mixture of base and lard into the NaCl mixture (not the other way around)

7. Let this new mixture cool completely. The solid cake that forms is the soap (whats left, if you do it out chemically, is glycerol)

Dissolve 12 oz. lye in 32 oz. softened water in a plastic or glass bowl. If at all possible, do this outside or under an exhaust fan.

Add the lye to the water, not vice versa. Pour the lye slowly and in a steady stream, and stir constantly with a plastic spoon.

Set the mixture aside to cool. The mixture will heat up considerably due to the lye reacting with fats in the oils. This is called saponification.

Melt 24 oz. coconut oil and 38 oz. solid vegetable shortening in a stainless steel pot.

Add 25 oz. olive oil (not virgin) and any fragrance oils you want to use.

Allow the oils to cool.

Grease the soap mold with Crisco.

When both the oil and lye mixtures have cooled to room temperature, slowly combine them, adding the lye to the oils.

Stir slowly and constantly. If you see bubbles, stir more slowly.

Drizzle the soap into the pot once in a while. When it keeps its shape momentarily before sinking into the rest of the mix (tracing), it's time to add whatever extras you want.

Stir your botanicals, grains and coloring into a cup of soap taken from the mix.

Combine that back into the original mixture.

Pour the soap into the mold.

Wrap the mold in a towel and leave it undisturbed for 18 hours. The soap mixture will heat up and then cool down. Avoid uncovering it until it's cooled.

Allow the soap to sit in the uncovered mold for another 12 hours.

Loosen the sides by wiggling the mold a little.

Turn the mold over onto a clean counter.

Cut the soap into bars with a knife. Some people use a miter box to make square corners.

Allow the bars to cure for three to four weeks before using. Smaller bars cure faster than larger ones.

Additives

Mix candle coloring into the oil solution. If it's wax-based, melt it first in a couple of tablespoons of oil and then add it to the rest of the oil mix.

Realize that you can also use crayons for coloring. Experiment with colors. Note that purples are very difficult to keep true.

Use 1 tsp. per pound of soap of the following ingredients: cocoa powder for brown, cayenne pepper for pink-peach, liquid chlorophyll for light green, turmeric for yellow, paprika for peach and titanium dioxide for white.

Use 1 oz. essential oil to scent a 4-lb. batch of soap.

Know that 2 tsp. ground cloves makes a great-smelling soap. Try grated orange or lemon peel or ginger, too.

Use rose water instead of regular water for rose soap.

Oatmeal makes a great complexion soap. Use 8 oz.

Add 4 oz. cornmeal for a gritty texture.

Make soap with 1/2 oz. geranium oil for dry skin.

Use tea tree oil - 1/2 oz. - for problem skin.

Soap Coloring

Soap Fragrance

Soap Molds

Colored Crayons

Thick Bath Towels

Coconut Oil

Distilled Waters

Non-virgin Olive (not Virgin) Oil

Vegetable Oils

Vinegar

Vinegar

Fragrant Essential Oils

Lye

Rubber Gloves

Rubber Gloves

Crisco Shortenings

Candy Thermometer

Measuring Cups And Spoons

Mixing Spoons

Plastic Bowls

Rubber Spatulas

Stainless Steel Stockpots

Stirring Spoons

Mitre Boxes

Safety Goggles

Safety Goggles

Rubber spatulas